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The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No.17

**UNITED STATES PATENT AND TRADEMARK OFFICE**

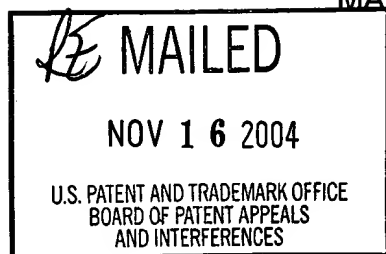
**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

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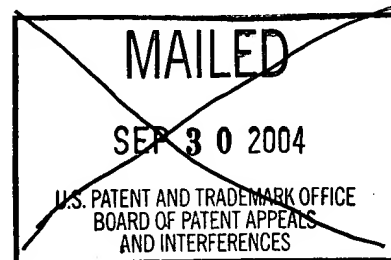
**DIRECTOR OFFICE  
TECHNOLOGY CENTER 2000**

Ex parte KARS-MICHIEL H. LENSSEN,  
MARC E.C. LAMBRECHTS, and GERARDUS J.J. VOS



Appeal No. 2003-1305  
Application No. 09/108,643

ON BRIEF



Before NASE, CRAWFORD, and DIXON, Administrative Patent Judges.  
CRAWFORD, Administrative Patent Judge.

**DECISION ON APPEAL**

This is a decision on appeal from the examiner's final rejection of claims 1 to 10, which are all of the claims pending in this application. Claims 11 to 15 are objected to as being dependent on rejected claims 1 and 6.

The appellants' invention relates to a method for controlling a graphical element on a display through manipulation of an input device (specification, p. 1). A copy of the claims under appeal is set forth in the appendix to the appellants' brief.

The prior art

The prior art reference of record relied upon by the examiner in rejecting the appealed claims is:

Rallison et al. (Rallison)

5,991,085

Nov. 23, 1999

The rejections

Claims 1 to 10 stand rejected under 35 U.S.C. § 102(b) as being unpatentable as anticipated by Rallison .

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejection, we make reference to the answer (Paper No. 15, mailed June 15, 2001) for the examiner's complete reasoning in support of the rejections, and to the brief (Paper No. 14, filed April 30, 2001) for the appellants' arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, to the applied prior art reference, and to the respective positions articulated by the appellants and the examiner. As a consequence of our review, we make the determinations which follow.

The examiner has rejected claims 1 to 10 under 35 U.S.C. 102(b) as being anticipated by Rallison. To support a rejection of a claim under 35 U.S.C. § 102(b), it must be shown that each element of the claim is found, either expressly described or under principles of inherency, in a single prior art reference. See Kalman v. Kimberly-Clark Corp., 713 F.2d 760, 772, 218 USPQ 781, 789 (Fed. Cir. 1983), cert. denied, 465 U.S. 1026 (1984).

The appellants invention is a method for controlling a graphical element on a display on for example a computer screen through manipulation of an input device. The input device measures three orthogonal components of a magnetic field through the use of three sensors which are sensitive to the magnetic field. The sensors produce a signal which is proportional to the strength of the magnetic field in three (X,Y, and Z) directions. The method includes the step of controlling a graphical element on the basis of a plurality of components in which the first X signal is calculated on the basis of at least two pluralities of components and the Y signal is calculated on the basis of at least two pluralities of the components. At least one of the at least two of the plurality of components used to calculate the Y signal is different from the at least two components used to calculate the X signal.

In one embodiment (specification at page 6) the equation used to calculate the X signal is:

$$X = \sin \left( \arctan \frac{V_y}{V_x} \right) = \frac{\frac{V_y}{V_x}}{\sqrt{1 + \frac{V_y^2}{V_x^2}}} = \frac{V_y}{\sqrt{V_x^2 + V_y^2}}$$

The corresponding Y signal is calculated as:

$$Y = \sin \left( \arctan \frac{V_z}{V_x} \right) = \frac{\frac{V_z}{V_x}}{\sqrt{1 + \frac{V_z^2}{V_x^2}}} = \frac{V_z}{\sqrt{V_x^2 + V_z^2}}$$

$V_x$  is proportional to the strength of the  $H_x$  component of the magnetic field and  $V_y$  is proportional to the  $H_y$  component of the magnetic field and  $V_z$  is proportional to the strength of the  $H_z$  component of the magnetic field. As can be seen from an examination of the two equations, the X signal is a function of the  $V_x$  and  $V_y$  and the Y

signal is a function of the  $V_x$  and  $V_z$ . The Y component is calculated by using  $V_z$  which is different from the components used to calculate the X signal.

The examiner details his findings regarding the disclosure of Rallison on pages 3 to 5 of the answer. /The examiner directs our attention to column 5, lines 10 to 19, column 20 lines 42 to 45 and column 21 lines 1 to 17 regarding the step of calculating the first signal X and the second signal Y. This portion of the Rallison reference discloses sensors that measure the magnetic field in three orthogonal directions and that the graphical element is controlled at least in part on the basis of these measurements. However, the examiner has not directed our attention to a section in Rallison that teaches that the X signal is calculated based on a plurality of components of the magnetic field and a Y signal is calculated based on a plurality of components of the magnetic field one of which is not utilized to calculate the X signal. In fact, it appears that in Rallison, all three components are used to calculate the X signal (col. 5, lines 14 to 19). *claim calls for at least two*

In addition, further inputs from additional sensors (gravitational)(col. 19, lines 13 to 17) are necessary under Rallison to complete the calculations ( pertaining to Y and Z) required to generate graphical elements displayed to the user in free space.

Appellants' invention limits control of the graphical elements to the two dimensions of a display allowing the movement to be calculated by the above equations using only a plurality of the three magnetic sensor inputs.

## CONCLUSION

REVERSED

BOARD OF PATENT  
APPEALS  
AND  
INTERFERENCES

MEC/jlb

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Application No. 09/108,643

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